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Physicochemical properties of dragon fruit peel pectin and citrus peel pectin: A comparison
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Abstract
Dragon fruit is a tropical fruit belongs to Cactae family of genus Hylocereus. Popular as buahnaga in Malay, dragon fruit is not only sought after for its wonderful taste, but this fruit is also nutritionally and medicinally attractive for consumers. The dragon fruit flesh is usually eaten raw or it is processed into juices and the remaining peel will be discarded. To minimize the waste created from dragon fruit consumption, an idea of transforming the peel of dragon fruit into edible pectin has been proposed. Pectin can be found in food products as a gelling agent and it is used to maintain the quality of foods. Recent market demand for pectin is increasing annually and to meet the supply-demand, researchers are working towards obtaining pectin from available non-conventional sources. In this study, pectin was extracted from dragon fruit peel by hot acid extraction at pH 3.5 and 75 mins of extraction. Distilled water was used as a solvent and the acidic environment was achieved with dilute HCl. Degree of esterification (DE) analysis was performed by FTIR. The extracted pectin was categorized as high methoxyl pectin based on DE (52%). The endothermic properties of dragon fruit pectin analyzed by DSC indicating the stability of extracted pectin compared to citrus peel pectin. Pectin extracted was characterized in terms of moisture (14.03±1.925), ash content (8.73±1.218), as well as water and oil-holding capacity (4.08±0.0.81) (2.18±0.096), swelling capacity (5.94±1.271) and texture profile in terms of gumminess (33.66±6.05), cohesiveness (1.06±0.08) and hardness (31.63±3.81). All characteristics were compared with citrus peel pectin.

Author Keywords
Characterization; Commercial pectin; Dragon fruit peel; Pectin extraction

Index Keywords
pectin; Article, ash, chemical binding, Citrus, cohesiveness, differential scanning calorimetry, esterification, food texture, Fourier transform infrared spectroscopy, fruit peel, gumminess, hardness, hot acid extraction, hydrophilicity, Hylocereus undatus, investigative procedures, moisture, nonhuman, oil holding capacity, pH, physical capacity, physical chemistry, physical parameters, swelling capacity, temperature, water holding capacity

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